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VARIOUS.

SLAG-WOOL.

Under the name of "schlackenwolle" (slagwool) a light fibrous substance, closely resembling cotton wool, is prepared at the Georgs-Marien Ironworks, at Osnabruck, and by Rose and Co. (Krupp's representatives), at Mannheim, by the continuous action of a jet of steam on iron slag in a state of fusion. It has a sp. gr. of 0,1 to 0,12, corresponding to an average weight of 100 to 120 kilogs. per cubic metre. It is well suited for stuffing steam-jackets, the casing of fire-proof safes, and other similar purposes, and as a filtering material. The Osnabruck schlackenwolle sells at 6 marks (shillings) per 50 kilogs., and in quantities exceeding 2,500 kilogs. at 4,5 marks per 50 kilogs. *Industrie-Blätter.*

ANILINE COPYING PENCILS.

Lothar de Faber patents a new description of pencil for copying writing or designs. It is made of different degrees of hardness, and is stated by the inventor to combine all the advantages of the very best lead pencils. Four kinds are manufactured: No. 1. very soft; composed of 50 parts of aniline, 37,5 graphite, and 12,5 kaoline. Nr. 2. soft; 46 parts aniline, 34 graphite, 24 kaoline. No. 3. hard; 30 parts aniline, 30 graphite, 40 kaoline. No. 4. very hard; 25 parts aniline, 25 graphite, 50 kaoline. These materials are pounded and mixed with the greatest care, and afterwards made into a paste with cold water. After the paste has been well worked and rendered perfectly homogeneous, it is passed through a wire screen, which divides it into strips of suitable dimensions. These are dried in an ordinary room, and afterwards fitted and glued into wooden cases like common lead pencils. The new pencils may be used like ordinary copying pencils for the reproduction of writing or designs. A sheet of thin paper wetted is laid over the sheet to be copied, and the details are gone over with the copying pencil. The action of the moisture on the aniline in the pencil gives a deep tint to the tracing resembling that of ordinary writing ink.

Revue Industrielle.

CRAYON-DRAWING, ETCHING, &c., IN BLACK OR COLOURS, ON CHINA.

Lavalle patents the application of crayon-drawing, pastel-painting, etching with the quill or other pen, and sundry other methods of design to the decoration of ceramic surfaces, either under or over the enamel, a discovery which gives promise of brilliant results in an artistic point of view. Any sort of earth will answer for the purpose. If it be white or otherwise of a suitable shade, and so long as it does not acquire a hard polished surface by firing, the design may be laid on either before or after the latter operation. In the contrary case, the biscuit should be covered with a glaze to give it a surface resembling that of crayon-paper, and furnaced after the design is put on. Various kinds of china glazes have been tried with good results. The crayons used for the purpose are composed of the various metallic oxides and other colouring matters employed in painting on china, pounded very fine and made up into crayons with a small admixture of the earth composing the biscuit. If the glaze be well chosen the design will adhere sufficiently, and it will only be necessary to varnish and fire. If it be not, the desired effect may be produced by heating. Care must be taken that the substances contained in the glaze and in the crayons are not such as will re-act injuriously on each other. The materials composing the crayons mixed with glycerine in suitable proportions furnish coloured inks suitable for etching. Quills, drawing-pens, &c. employed for the latter purpose should be made of some soft material, as horn, unhardened crow-quills or the like. *Revue Industrielle.*

MATERIAL FOR BUILDING.

A material suitable for blocks and bricks is, according to the invention of Messrs. Smith and Paterson, of Glasgow, made from two mixtures. The first contains coal tar, mixed with small broken stones or shingle, a portion of which should be pulverised or mixed with sand, so that the interstices between the stones of larger size may be properly filled up. The second mixture is composed of clay and pitch; sand or chalk may be substituted for the clay. The first mixture is mixed in a mixing apparatus at a heat which is gradually increased until the product is adhesive to the touch. The second mixture is formed by grinding the powder thus obtained, and is added to the first mixture while its particles are adhesive to the touch. The mixture of the two compounds is confined in a close vessel and heated so as to diffuse the vapours uniformly throughout the ingredients. In manufacturing a building block, the material, having been tested, is removed while hot to moulds, and pressed and shaped as required.

The Builder.

STONEHENGE.

Quite recently a party of civil engineers proceeded to this spot, and were engaged for four or five days in taking most elaborate measurements of the structure, as well as making astronomical calculations. The results of their exhaustive survey have been very striking, astonishing, it is said, none more than the *savants* themselves, and leave not the least doubt about the solar references of the structure; and, further, that it was undoubtedly erected as a temple of the sun! *The Builder.*

BRONZES INCRUSTÉS.

This is the name given to a new style of bronze or copper work ornamented with gold and silver, and manufactured by Christofle & Co. in Paris. The ornamentation is produced by etching and electro-plating, and consists, according to Dr. Meidinger, in the following operations: After the object, which may be of massive copper or bronze, has received the desired form, the drawings are made with water-colors, the body of which is white lead. If several pieces are to have the same design, it may be printed on as in porcelain and fayence painting. Those portions of the surface not painted are covered with varnish. The article is then placed in dilute nitric acid, whereby the paint is dissolved and the surface of the metal is etched to a certain depth. When the etching is finished, the article is washed with water and immediately placed in a silver or gold bath, and a layer of the precious metal deposited by electricity on the exposed portions. When the latter operation is finished, the varnish is perfectly removed and the whole surface ground or polished, so that the ornamented portion is just even with the remainder of the surface. The contours are quite sharp. The surface is then bronzed, which does not change the color of the gold or silver. A specially fine effect is obtained by producing a black bronze of sulphuret of copper on portions of the surface between the silver ornaments. A copper vessel then has three colors — black and white drawings on a red-brown ground of suboxide of copper.

This new process for ornamenting metals has been devised at Christofle's works since the Paris Exposition of 1867. Specimens exhibited at Vienna in 1873 show the high degree of perfection to which it has already been brought. Unfortunately, these goods are so expensive as to be only accessible to the few, although much cheaper than those in which the engraving is done by hand and the gold or silver inserted by mechanical means. The production of an incrustation requires a high degree of manual skill and patience, but no costly machinery; indeed, every brass foundry contains all the necessary tools for the mechanical operations.

Iron.

MARBLE.

To remove ink stains from white marble, make a paste with a little chloride of lime and water, and rub it into the stains; afterwards sponge with soap and water.